

RADM Richard Brooks



Commander, Naval Safety Center





Crew Safety during Hi-tempo Operations

Video Clip: The Missile Deck



Secretary Rumsfeld's Challenge



THE SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

May 19, 2003

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTOR, FORCE TRANSFORMATION
DIRECTOR, NET ASSESSMENT
DIRECTOR, PROGRAM ANALYSIS AND EVALUATION
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Reducing Preventable Accidents

World-class organizations do not tolerate preventable accidents. Our accident rates have increased recently, and we need to turn this situation around. I challenge all of you to reduce the number of mishaps and accident rates by at least 50% in the next two years. ~~These goals are achievable, and will directly increase our operational readiness. We owe no less to the men and women who defend our Nation.~~

I have asked the Under Secretary of Defense for Personnel and Readiness to lead a department-wide effort to focus our accident reduction effort. I intend to be updated on our progress routinely. The USD(P&R) will provide detailed instructions in separate correspondence.

A handwritten signature in black ink, appearing to read "Rumsfeld".



U06916-03

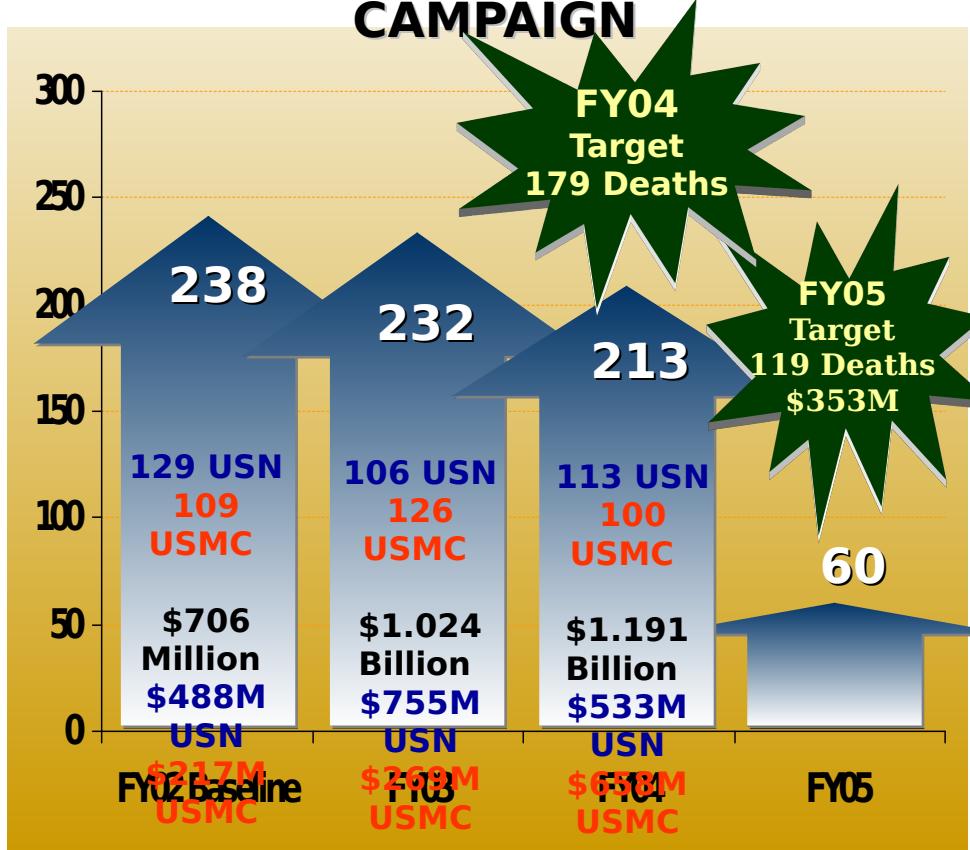
"World-class organizations do not tolerate preventable accidents. Our accident rates have increased recently, and we need to turn this situation around. I challenge all of you to reduce the number of mishaps and accident rates by at least 50% in the next two years."

Memorandum from Secretary of Defense
19 May 2003



Where We Are Today - "Big Navy"

FATALITIES & RESOURCES LOST DURING 50% MISHAP REDUCTION CAMPAIGN



We have experienced 60 deaths in FY05
(35 USN & 25 USMC)

Our FY05 50% mishap reduction

PMV Fatalities:

24 Sailors and 14 Marines

Resources Lost:

\$172M to date in FY05

OUR ENDSTATE GOAL IS

ZERO!



Magnitude of Accidents

In FY04, Navy and Marine Corps Mishaps Resulted In:

NAVY

- **1 Navy death every 78 hours (3 days)**
- **1 POV death every 120 hours (5 days)**
- **1 Aviation death every 73 days**
- **1 Active duty military injury every 6 hours**
- **1.8 Military members hospitalized every day**
- **11.33 Civilian man-years lost**
- **1 Aircraft destroyed every 41 days**
- **\$1.33 Million a day in aviation losses**

MARINE CORPS

- **1 Marine death every 88 hours (4 days)**
- **1 POV death every 191 hours (8 days)**
- **1 Aviation death every 26 days**
- **1 Active duty military injury every 25 hours**
- **1.9 Military members hospitalized every day**
- **2.53 Civilian man-years lost**
- **1 Aircraft destroyed every 19 days**
- **\$1.74 Million a day in aviation losses**



Are you aware of how your Sailors are performing assigned tasks?

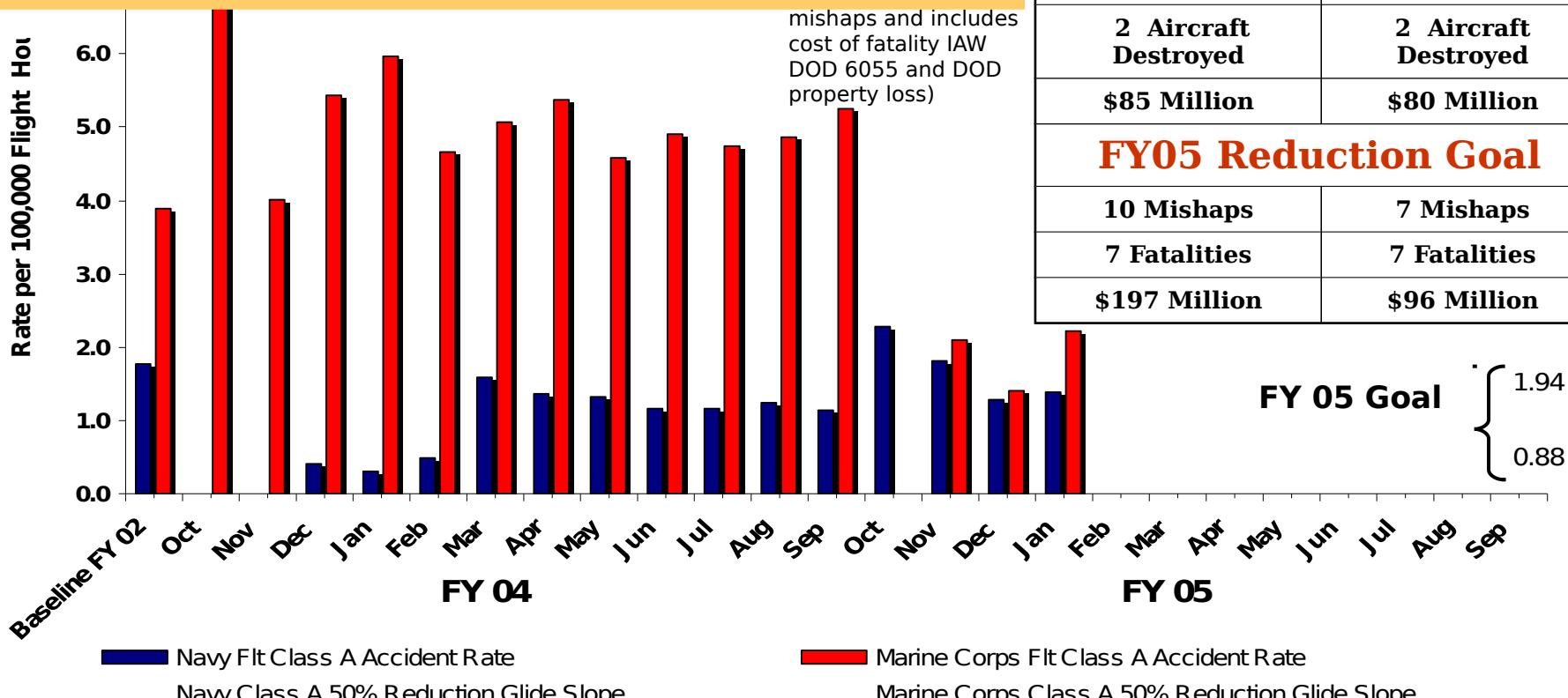
Video Clip: Construction Site Mishap



Status Check

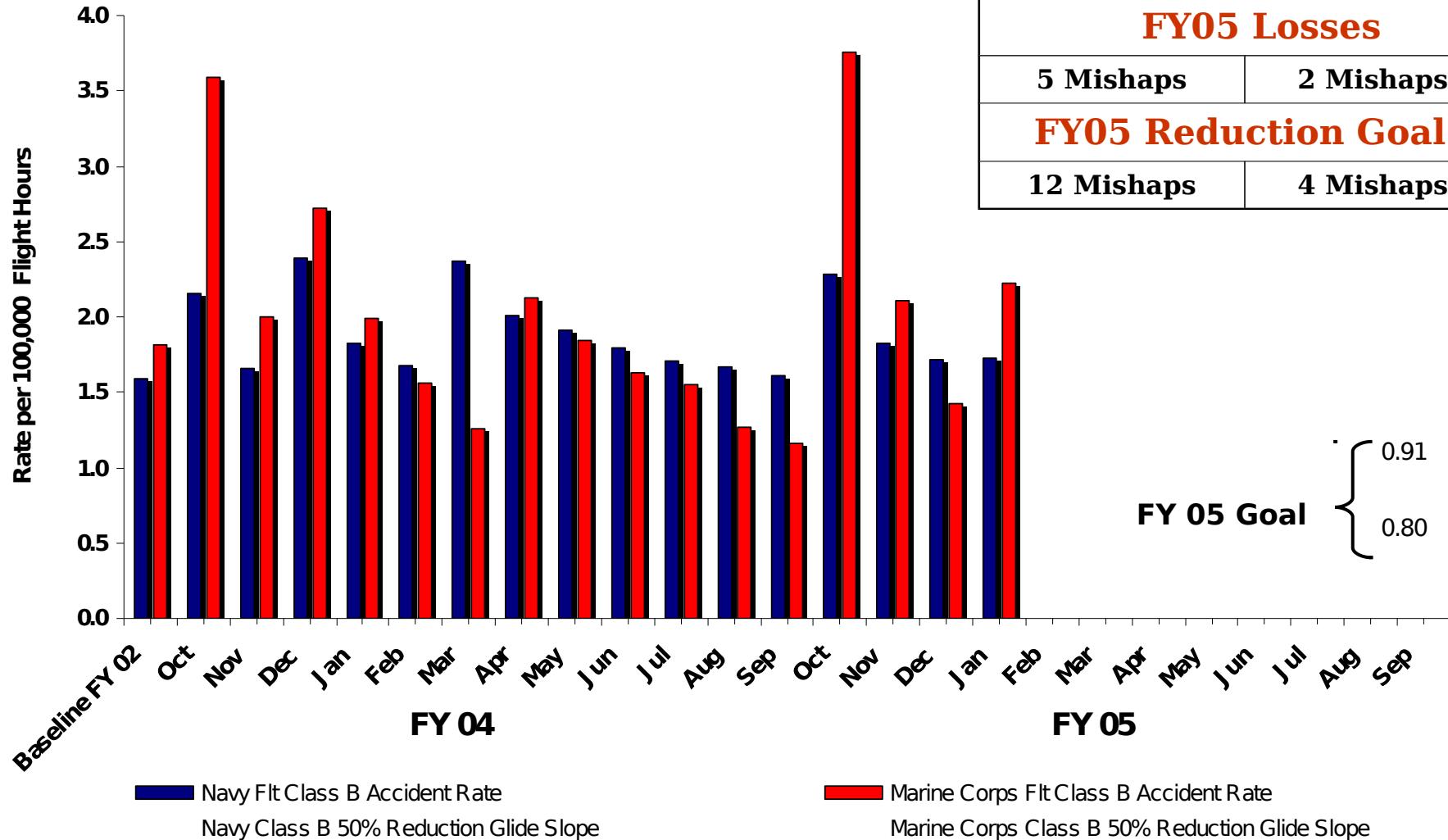
Leading Causal Factors

- Human Error (89%)
 - Aircrrew (breakdown in Crew Resource Management, poor decision making, failure to properly perform emergency procedures)
 - Supervisory (failure to provide adequate guidance and training)
- Material/Systems Malfunction (11%)
 - Material/component catastrophic failure (no human error involved)





Status Check (Class-B Flight Mishaps)



FY04 Losses	
USN	USMC
27 Mishaps	6 Mishaps
FY05 Losses	
5 Mishaps	2 Mishaps
FY05 Reduction Goal	
12 Mishaps	4 Mishaps

FY 05 Goal

0.91
0.80



Naval Aviation Mishap Trend

USN/USMC, FY02-04

6

5

4

3

2

1

0

02

03

04

19 lives were lost
& 28 aircraft were
destroyed in
2004

USMC
FY04: 5.25

USN
FY04: 1.13

1.94 by FY05

GOAL

.88 by FY05

USN is struggling
in FY05



FY04 Class "A" Causal Factors for Aviation Mishaps

- Aircrew >90%
 - Unsafe acts:
USN - 80% USMC - 65%
 - Preconditions for Unsafe Acts:
USN - 40% USMC - 65%
- Supervisory 45%
- Facilities 12%
- Maintenance 12%
- Material 33%



VS-35

**10 August 2004
CFIT on Kita Iwo Jima**

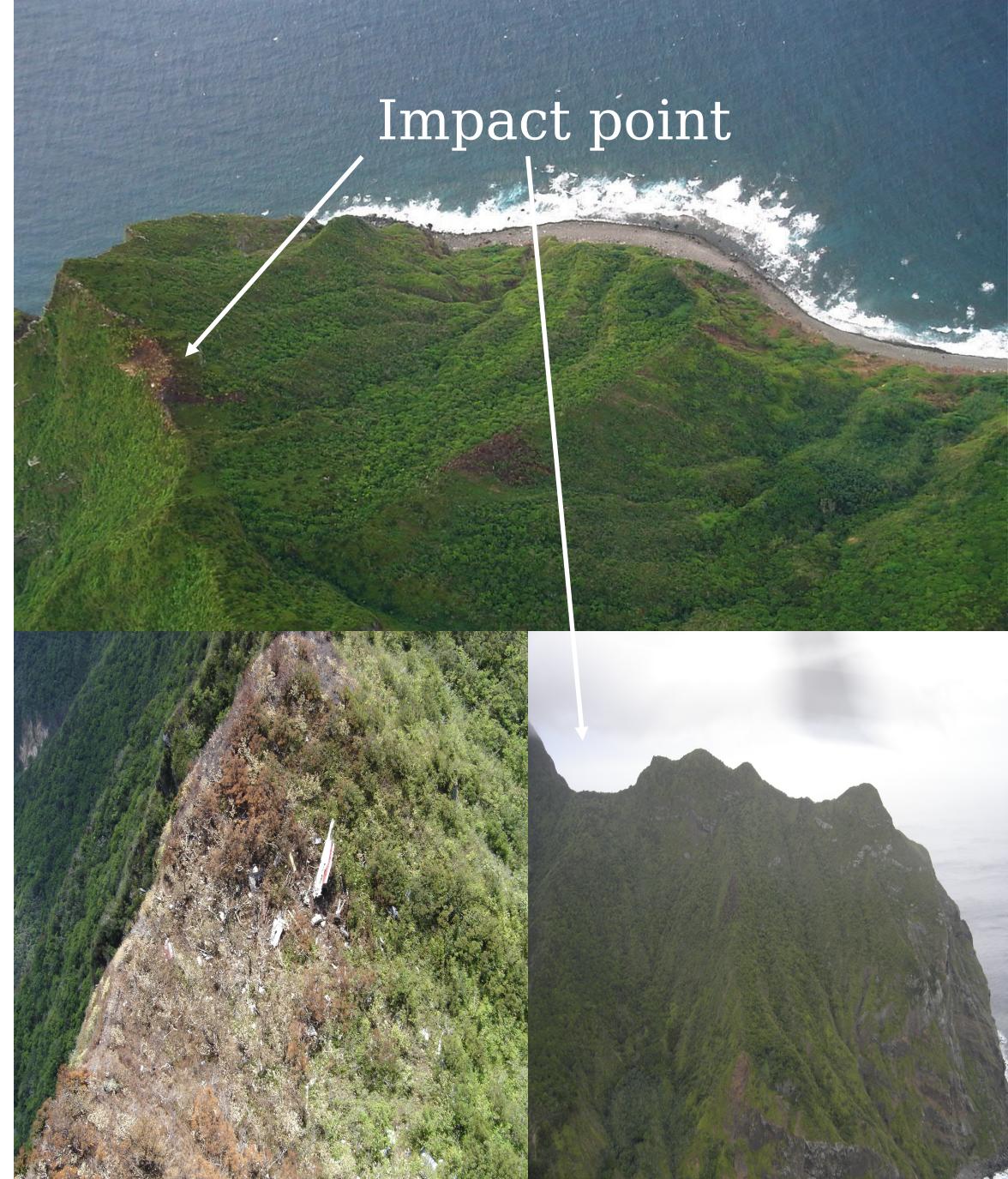
Iwo Jima

**AIRCRAFT IMPACTED TERRAIN
ON IWO JIMA AFTER
MISIDENTIFYING ISLAND AS A
SURFACE CONTACT. ALL
AIRCREW KILLED**

CAUSAL FACTORS:

- MC ATTEMPTED OVERFLIGHT
OF AN UNIDENTIFIED RADAR
CONTACT**
- MC FAILED TO PROPERLY
PREPARE FOR THE FLIGHT BRIEF
IN THE LOCAL OPAREA**

**ADDITIONALLY CITED: POOR
SITUATIONAL AWARENESS,
INADEQUATE GUIDANCE FROM
MSCO AND MCVWCO,
INADEQUATE TURNOVER
BETWEEN CREWS, INADEQUATE
FOP AREA BRIEFING BY 005.
SHD/INTEL**





VFA-203

29 March 2004

Flight Mishap (struck wires)

AIRCRAFT WAS PART OF A LONG WEEKEND CROSS-COUNTRY THREE PLANE FLIGHT.

ON RETURN TO HOME PLATE AS A 2-PLANE, THE MISHAP AIRCRAFT IMPACTED WIRES WHILE ON AN UNSCHEDULED LOW LEVEL, PILOT Causal Factors: EJECTED, AIRCRAFT WAS DESTROYED.

- Complacency and over confidence resulted in poor flight discipline.
- MP willfully violated route structure.
- MP failed to maneuver within the vertical limits of the route structure.
- MP continued low level flight with doubts to actual altitude.
- MP improperly set the RADALT.





VF-31

29 March 2004

Flight mishap (fuel starvation)

**AIRCRAFT CRASHED AT SEA
FOLLOWING DUAL ENGINE
FLAMEOUT**

CAUSAL FACTORS:

- MC FAILED TO FOLLOW NATOPS PROCEDURES FOR FUEL IMBALANCE
- MC UTILIZED NON-STANDARD CORRECTIVE PROCEDURES FOR F-14D FUEL PROBLEMS
- MATERIAL FAILURE OF FUEL FEED COMPONENTS

ALSO CITED: IMPROPER NATOPS CHANGES MADE TO MANUALS, IMPROPER ASSISTANCE GIVEN FROM WINGMAN





Best Fleet Practices - Aviation

AVIATION

- 1. Daily OPS brief prior to commencing flight operations each morning.**
- 2. Safety Petty Officer of the Day program (SPOD).**
- 3. Human Factors Council (HFC), to include the squadron's enlisted personnel.**
- 4. Improved mishap prevention practices for 'small boy' flight decks.**
- 5. Culture Workshops (only 5% of squadrons that completed a CW have had mishaps in the following year).**



FY04 Class A Flight Mishaps

USN (black) - USMC (red)

- 14 Sep 04: F/A-18C, VMFA-212 (Tyndall) Aircraft crashed while holding prior to approach for landing.
- 13 Sep 04: CH-53E, HMM-361 (Overseas) Tail-rotor struck ground during night CAL.
- 27 Aug 04: F/A-18C, VFA-151 (NAS North Island) Aircraft departed runway during landing.
- 13 Aug 04: CH-53D, HMM-265 (Futema) Aircraft crashed near MCAS during landing phase.
- 11 Aug 04: CH-53E, HMM-166 (Iraq) Aircraft crashed during night combat logistics run.
- 10 Aug 04: MH-53E, HC-4 (Sigonella) Aircraft became airborne during stop on taxiway in wash area and struck ground.
- 10 Aug 04: S-3B, VS-35 (Japan) Aircraft crashed into terrain on WESTPAC island.
- 21 Jul 04: F/A-18A, VMFA-134 (Oregon) Midair collision during unit level training.
- 12 Jul 04: T-45C, VT-7 (Meridian NAS) Student pilot on SOLO departed runway on landing and ejected.
- 28 Jun 04: F/A-18C, VMFA-122 (Beaufort MCAS) Aircraft departed runway on landing and overturned.
- 27 Jun 04: F/A-18A, VMFA-115 (Mid Atlantic) Aircraft lost at sea during night CV operations.
- 28 May 04: F/A-18C, VFA-82 (Mid Atlantic) During PMCF, FLIR pod separated from aircraft and fell into sea.
- 26 Apr 04: CH-46E, HMM-266 (Afghanistan) Brownout to hard landing, rotor blades struck terrain and situated upright.
- 21 Apr 04: F/A-18A, VMFA-112 (SOCAL logistics) Audio transmissions ceased during flight and a/c failed to return to base.
- 30 Mar 04: AH-1W, COMMARFORPAC - Two AH-1W aircraft collided while air taxiing off active runway to the FARP.
- 29 Mar 04: F/A-18A, VFA-203 (Tennessee) Pilot ejected during low level flight.
- 29 Mar 04: F-14D, VF-31 (SOCAL Ops Area) Aircraft diverted to NAS with fuel transfer problems.
- 26 Mar 04: F/A-18C, VFA-15 (Raleigh Durham Intl) Aircraft crashed on take-off roll.
- 24 Mar 04: F/A-18C, VFA-82 (Mid Atlantic) Aircraft struck water.
- 10 Mar 04: F/A-18C, VFA-94 (Lemoore) Aircraft departed runway on landing rollout and overturned.
- 04 Mar 04: SH-60B, HSL-40 (NAS Mayport) Loss of tail-rotor authority on landing resulted in rolling of aircraft.
- 24 Feb 04: T-45C, VT-9 (NAS Meridian) Crash on runway during landing roll-out.
- 23 Jan 04: AH-1W, HMLA-367 (Yuma) Helo crashed while conducting day urban CAS training mission.
- 22 Jan 04: UH-1N, HMM-166 (Camp Pendleton) Aircraft struck ground during night ops training mission. *FB0598 ASO. 27 January 2005.*
- 17 Dec 03: F/A-18C, VX-2 (China Lake) Aircraft departed runway on landing



Human Error

USN/USMC, FY98-03

No. of Class-A Mishaps

USN Aviation



120 of 133

→ HE 90%

Non-
HE
10%

USMC Aviation



62 of 71

→ HE 87%

Non-
HE
13%

Navy Afloat



48 of 51

→ HE 94%

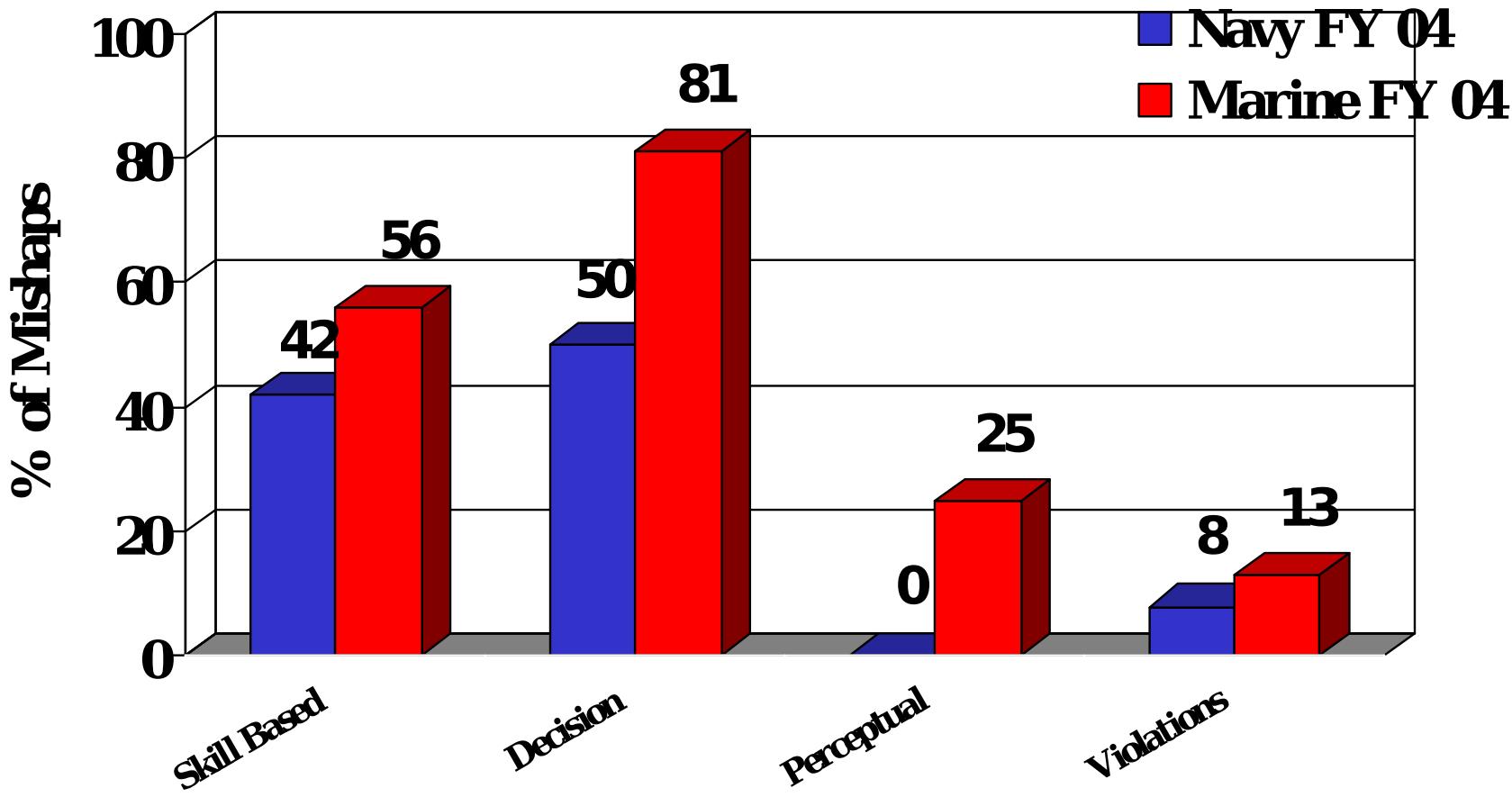
Non-
HE
6%

Human Error



Human Factor Errors (FY04)

Unsafe Acts - AircREW

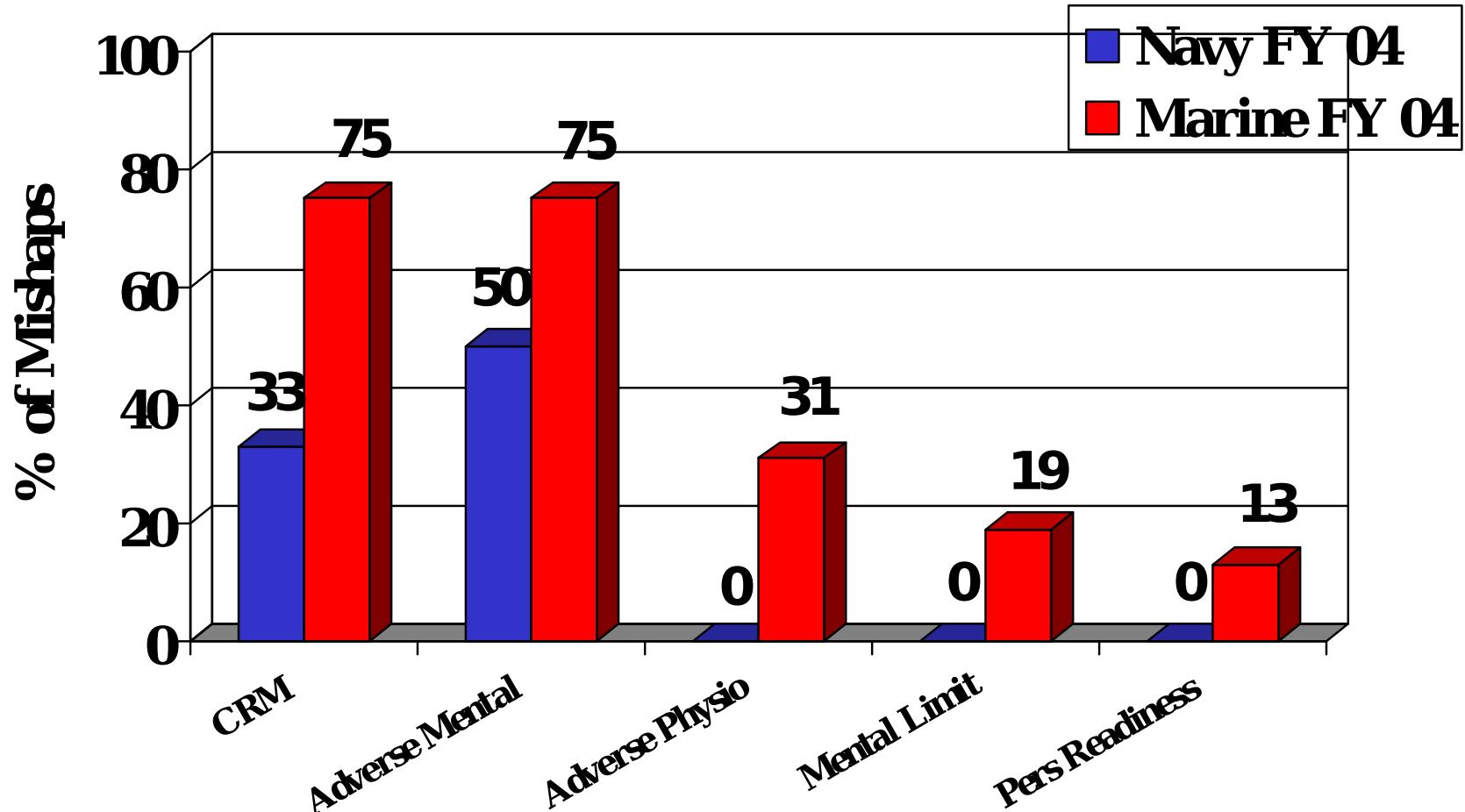


Human Factor Errors (Unsafe Acts - AircREW)



Human Factor Errors (FY04)

Preconditions - AircREW

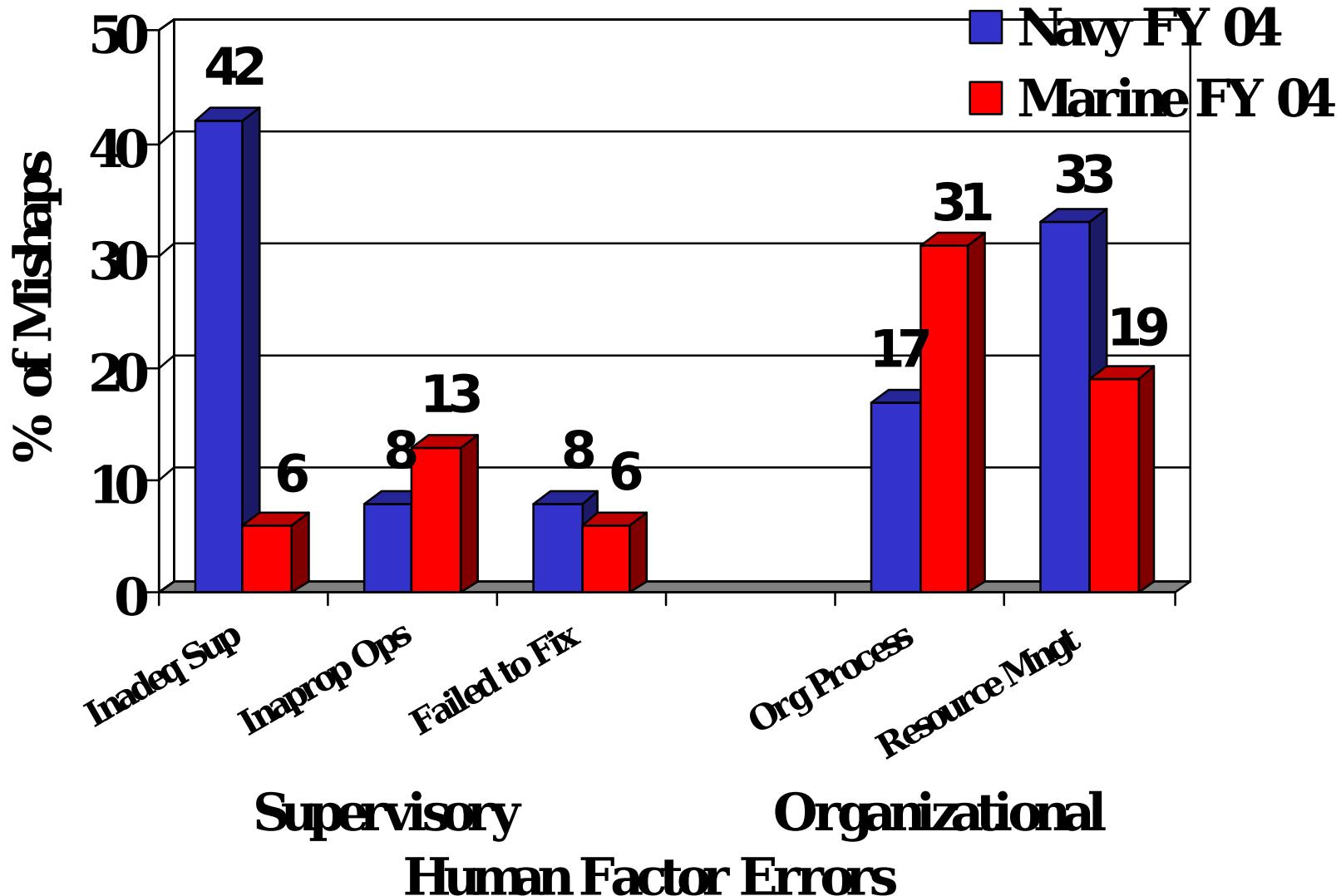


Human Factor Errors (Preconditions - AircREW)



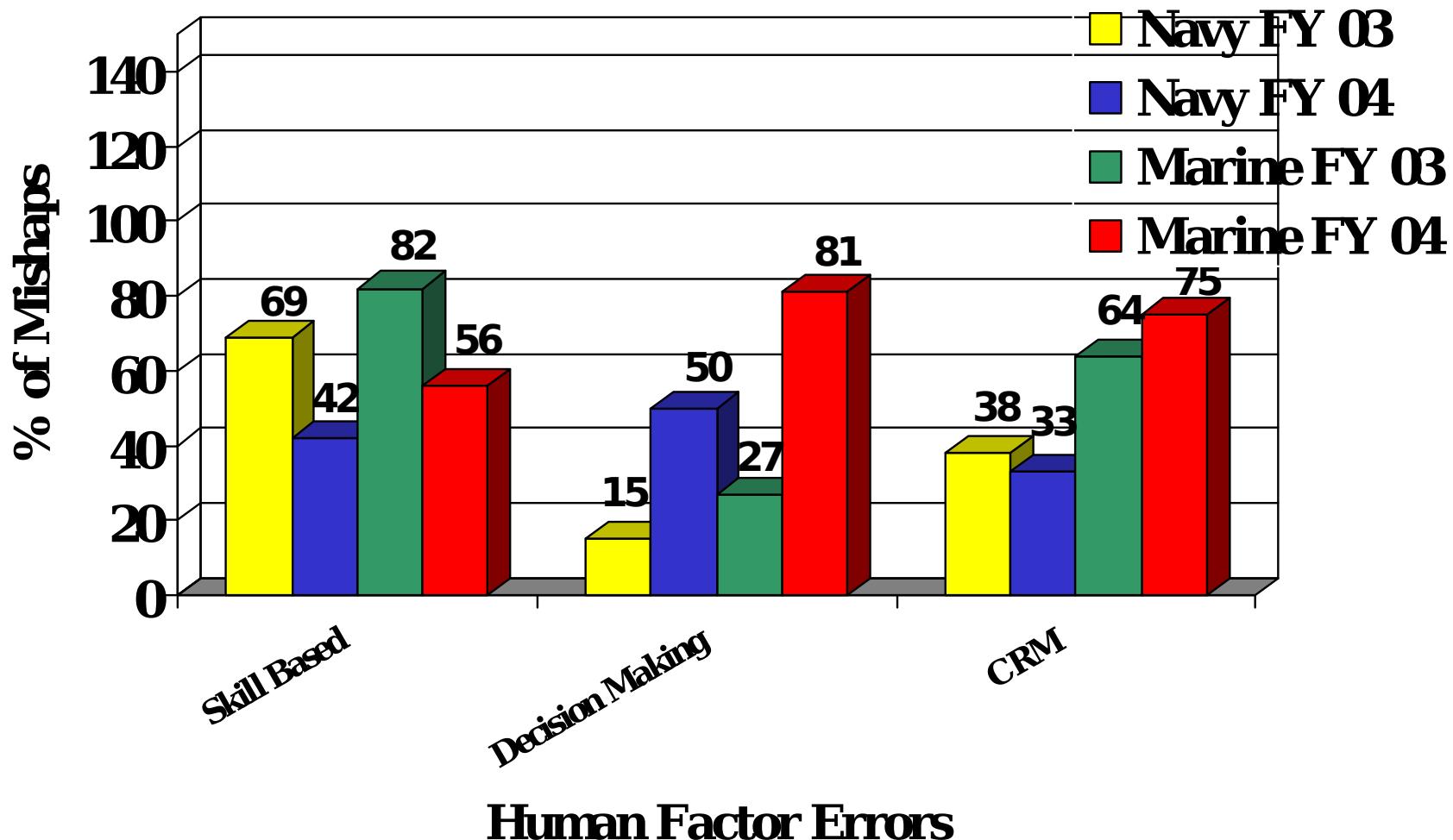
Human Factor Errors (FY04)

Supervisory and Organization





Human Factor Errors FY 04 compared to FY 03



Human Factor Errors

AVIATION

TRENDS

Investigations

- **Human error (aircrew): Leading causal factor**
 - Skill-based errors

Surveys failures

- Many pilot experience
- Poor experience
- Training quality/quantity
- NATOPS/technical pubs

- Cannibalization rates up

TAKEAWAYS

- Fund state-of-art simulators and data centric systems
- Improve training
- Increase proficiency
- Institutionalize ORM
- Enforce standards
- Increase checks and balances





Aviation Intervention Strategies





Survey Takeaways FY 2003

**Safety Surveys on 90+ aviation co
revealed:**

- Aviation HAZREP submissions
- NAMP Program Knowledge/Compliance
- High OPTEMPO (real vs perceived pressure)
- Manning vs Utilization
- Flight Surgeon availability



Command Safety Assessment / Maintenance Climate Assessment Surveys

580 CSA's thru October FY 04 (approx. 19,000 aircrew)

CSA observations (aircrew)

- **44% inadequate resources**
- **62% commands over-committed**

**550 MCAS's (approx. 48,000
maintainers)**

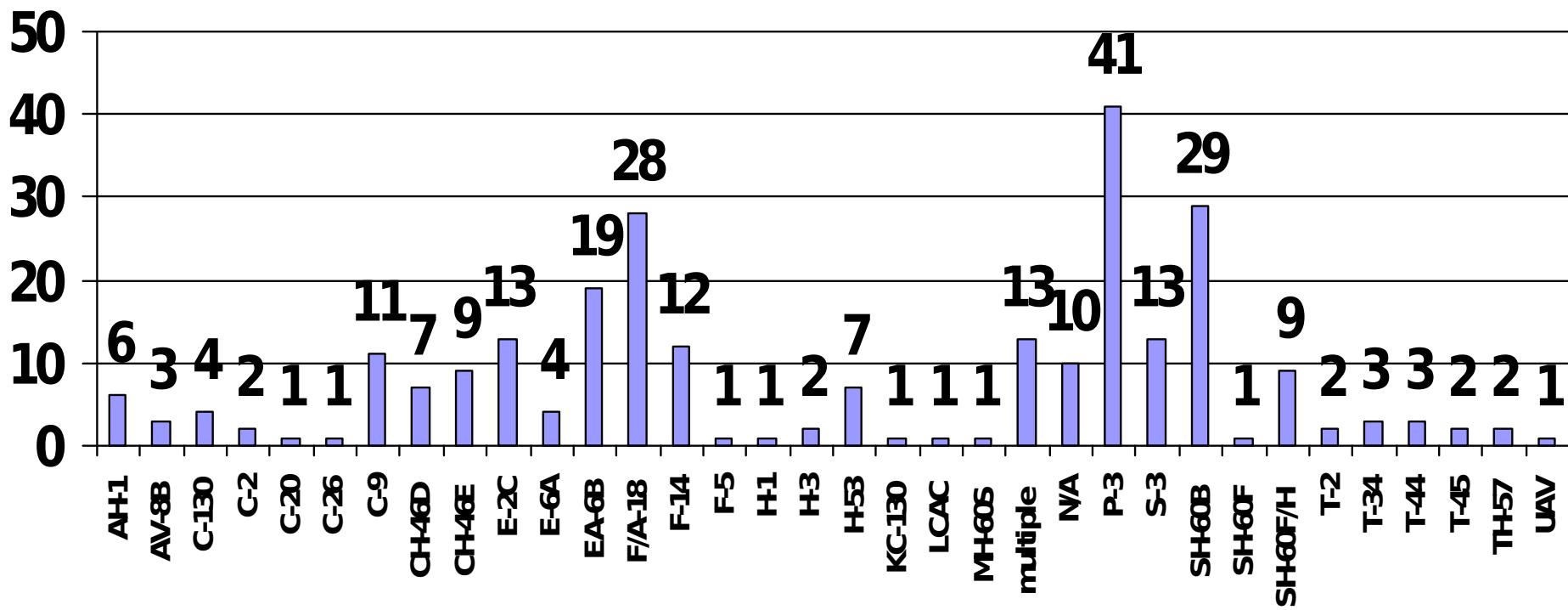
MCAS observations (maintenance personnel)

- **27% “cutting corners” not discouraged**
- **51% inadequate command safety recognition**
- **32% ineffective pass-down between shifts**
- **49% poor communication up / down chain of command**
- **55% commands over-committed**



Culture Workshops

Completed By Aircraft Type Since FY01

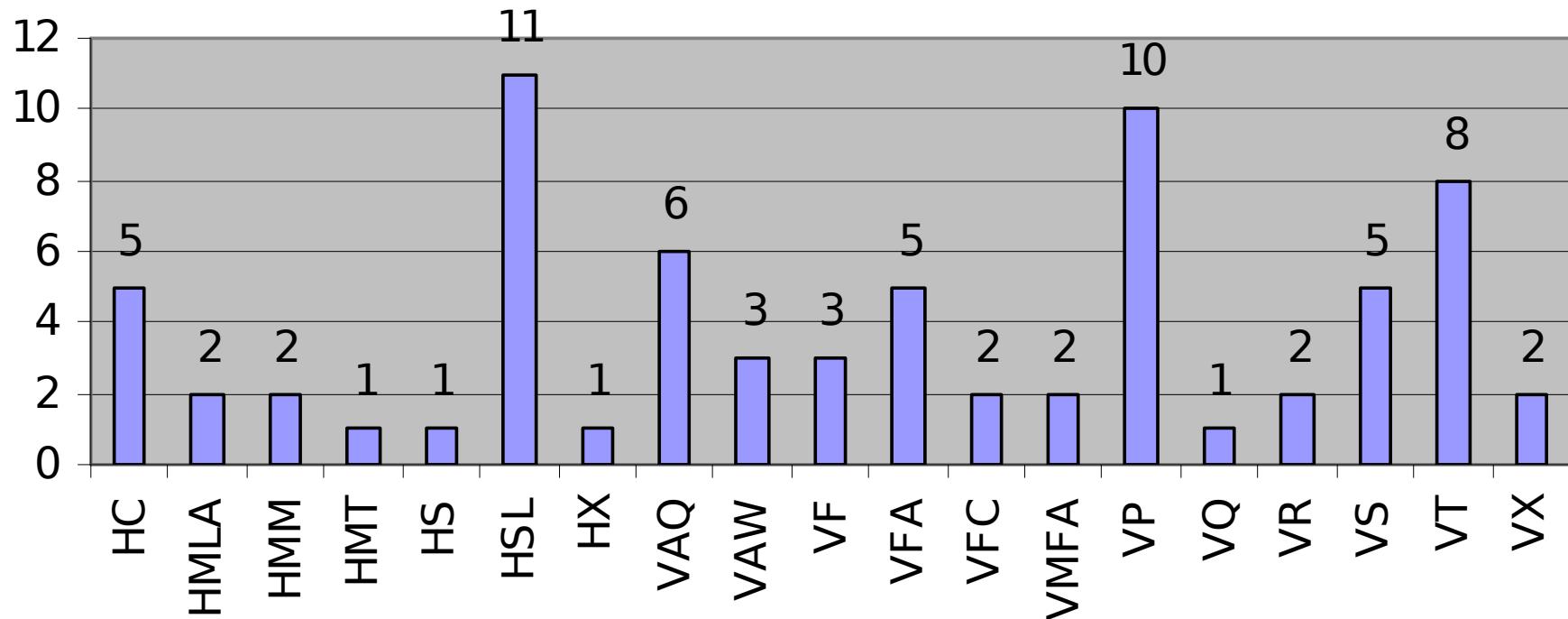


■ Count



Culture Workshops

FY04 NUMBER OF WORKSHOPS BY COMMUNITY





Today's Areas of Greatest Concern

The Largest Challenge: Aviation - Traffic - Recreation!



FISCAL YEAR	COST	
	OVERAL L	AVIATIO N
FY00-04	\$4.6B	\$4.0B
FY02	\$683M	\$588M
FY03	\$1.029B	\$955M
FY04	\$1.365B	\$1.286B
FY05	\$171M	\$164M

OVERAL L	DEATHS			RECREATION Air	Afloat	Shore
	%	PMV Air	PMV Afloat	PMV Shore		
1,071	582 54%	90	124	368	149 14%	29
238	140 59%	30	32	78	32 13%	9
232	119 51%	17	31	71	32 14%	6
	119	16	20	83	33	20

(\$\$\$ totals represent cost of all reported mishaps and includes cost of fatality IAW DOD 6055 and DOD property loss)

65-77% of deaths are due to PMV & Recreation mishaps
85-96% of resources lost are due to Aviation mishaps



Commander's Assessment

● Status Quo Will Not Get the Job Done.

Good programs exist and have produced some good results, but...

● Leadership and Accountability Required.

Most mishaps can be prevented with appropriate intrusive leadership and involvement at every level.

● Cradle to Grave Training as Long-Term Fix.

5 Vector Model being worked by Navy Center for Personal Development.

● Safety Center & Navy-Marine Corps Focus.

Predictive and Preparative vice Reactive.

● Utilize All Available Safety Resources.

Army Safety Management Information System, Traffic Safety Toolbox, Leave/Liberty Risk Assessments, etc.

● Emphasize Safety and Risk Management “24x7.”

A way of life. Not a concept that gets increased emphasis post-mishap.

● Balanced Acquisition Approach.

Balanced acquisition approach for platforms and COTS/emergent technologies to reduce mishaps.

● ORM is Getting There, But More to Do to Ingrain It On and Off-

● Duty Bottom Line

PLATFORM MISHAP REDUCTION - ACHIEVABLE. OFF-DUTY - HARD

TOP CONCERNS

- Off-Duty (PMV, REC) the challenge
- 50% Mishap Reduction Campaign NOT consistently reaching deckplates
- Cultural change takes time

PERSPECTIVE

"IN 1968, WE LOST 99 AMERICAN
SAILORS IN USS SCORPION,
WHICH WE THINK OF AS
A NATIONAL DISASTER;
WHILE WE LOST
103 SAILORS AND MARINES
IN PMV ACCIDENTS IN 1998,
AND CALL IT OUR 'BEST YEAR'!"

ROBERT B. PIRIE
ACTING SECRETARY OF THE NAVY
20 JANUARY - 24 MAY 2001

There are no memorials
to honor service members
who died in car accidents.

**WHY DO WE ACCEPT
MISHAPS?**

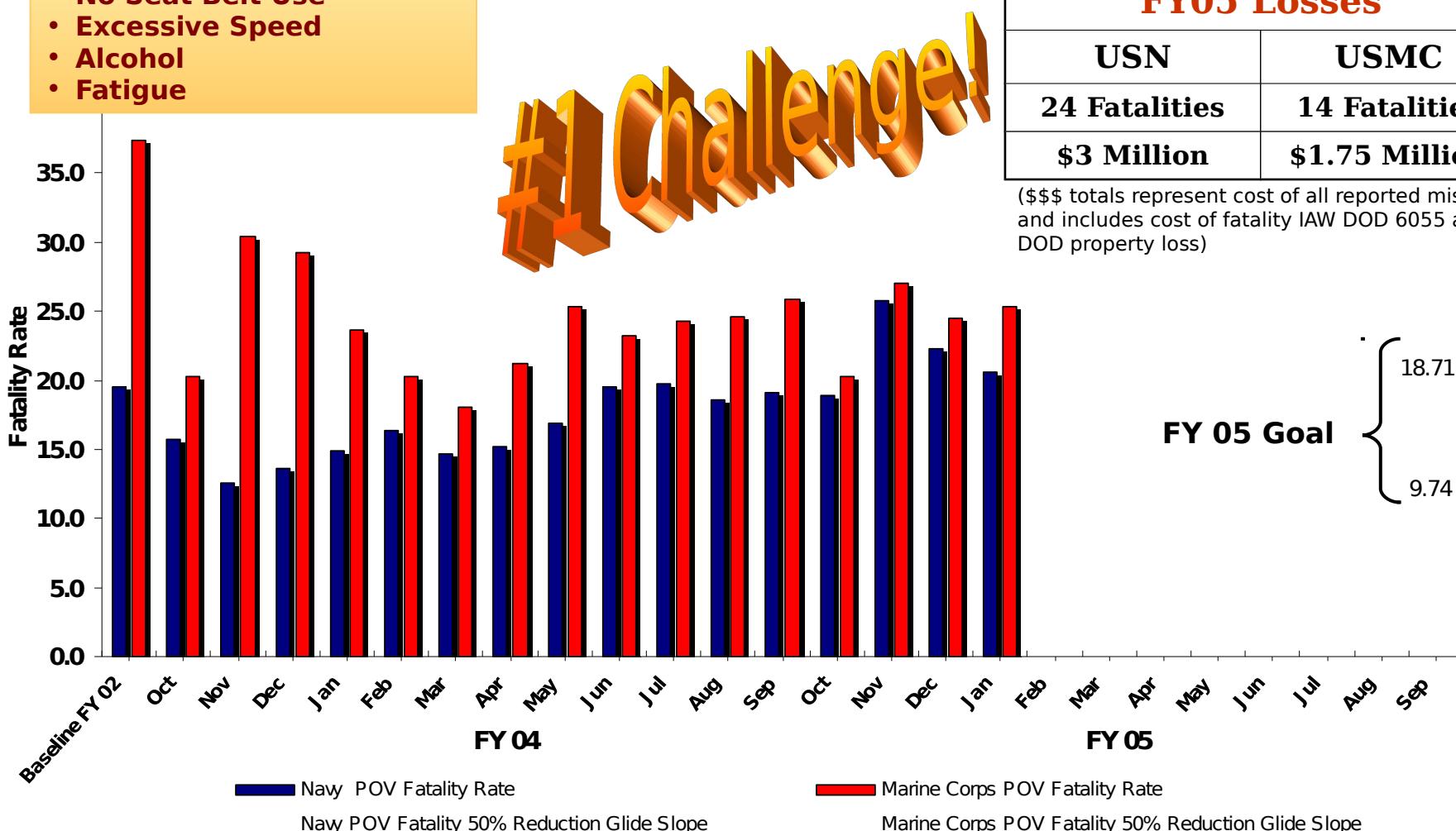




Status Check (PMV Fatalities)

Leading Causal Factors

- Nighttime Driving
- No Seat Belt Use
- Excessive Speed
- Alcohol
- Fatigue



FY04 Losses

USN	USMC
73 Fatalities	46 Fatalities
\$14 Million	\$11 Million

FY05 Losses

USN	USMC
24 Fatalities	14 Fatalities
\$3 Million	\$1.75 Million

(\$\$\$ totals represent cost of all reported mishaps and includes cost of fatality IAW DOD 6055 and DOD property loss)

FY 05 Goal

{ 18.71
9.74

Updated
24Jan05

30



Factors in Traffic Deaths

USN/USMC, FY02-04

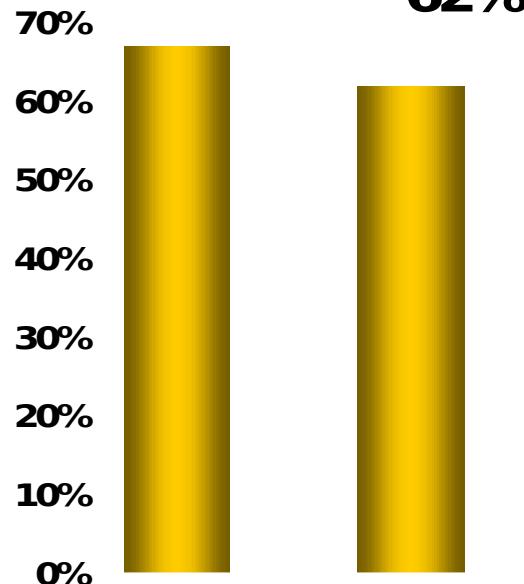
FY02-04 Deaths:

378

FY02: 140 FY03: 119 FY04:

67% 119

62%



FY05 Deaths:

38

Where is the leadership?

42%

31%

36%

13%





Click It or Ticket... Do your personnel buckle up???

Video Clip: “Heaven Can Wait”



Have your Sailors or Marines completed a required motorcycle safety course?

Video Clip: Motorcycle Mishap



Are they operating their motorcycles safely?

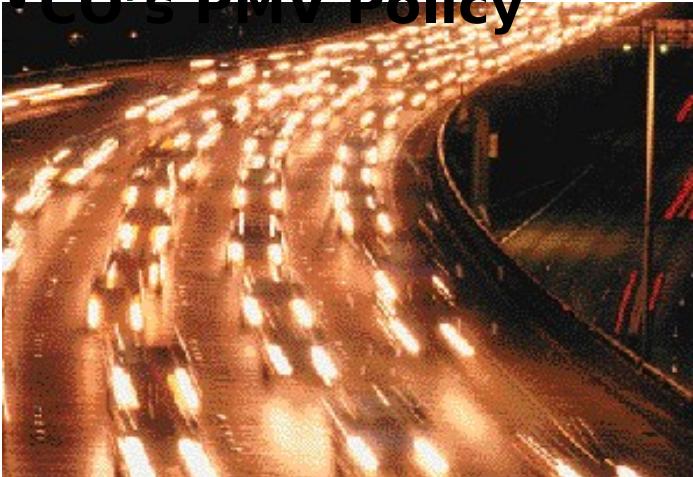
Video Clip: Motorcycle Mishap



Toolbox for Motor Vehicle Safety

(www.safetycenter.navy.mil/ashore/motorvehicle/downloads/toolbox.doc)

- Leave Chit Statement
- PMV Status Board
- Designated Driver / CMD Transport
- Pre-Trip Checklist / Brief / Counseling
- Calling card for emergencies
- CO's PMV Policy



- PMV Safety Quiz
- Safety Standdowns / Seminars
- Pre - Holiday Briefs
- Newcomer orientation/Indoc
- Leave / Liberty request
- Crash Prevention Awards Program



Speeding vs. Physics!

Video Clip: Speeding



Awareness is critical at all times for your personnel...

Video Clip: Pedestrian Mishap



What steps can you take to help prevent fatigued drivers?

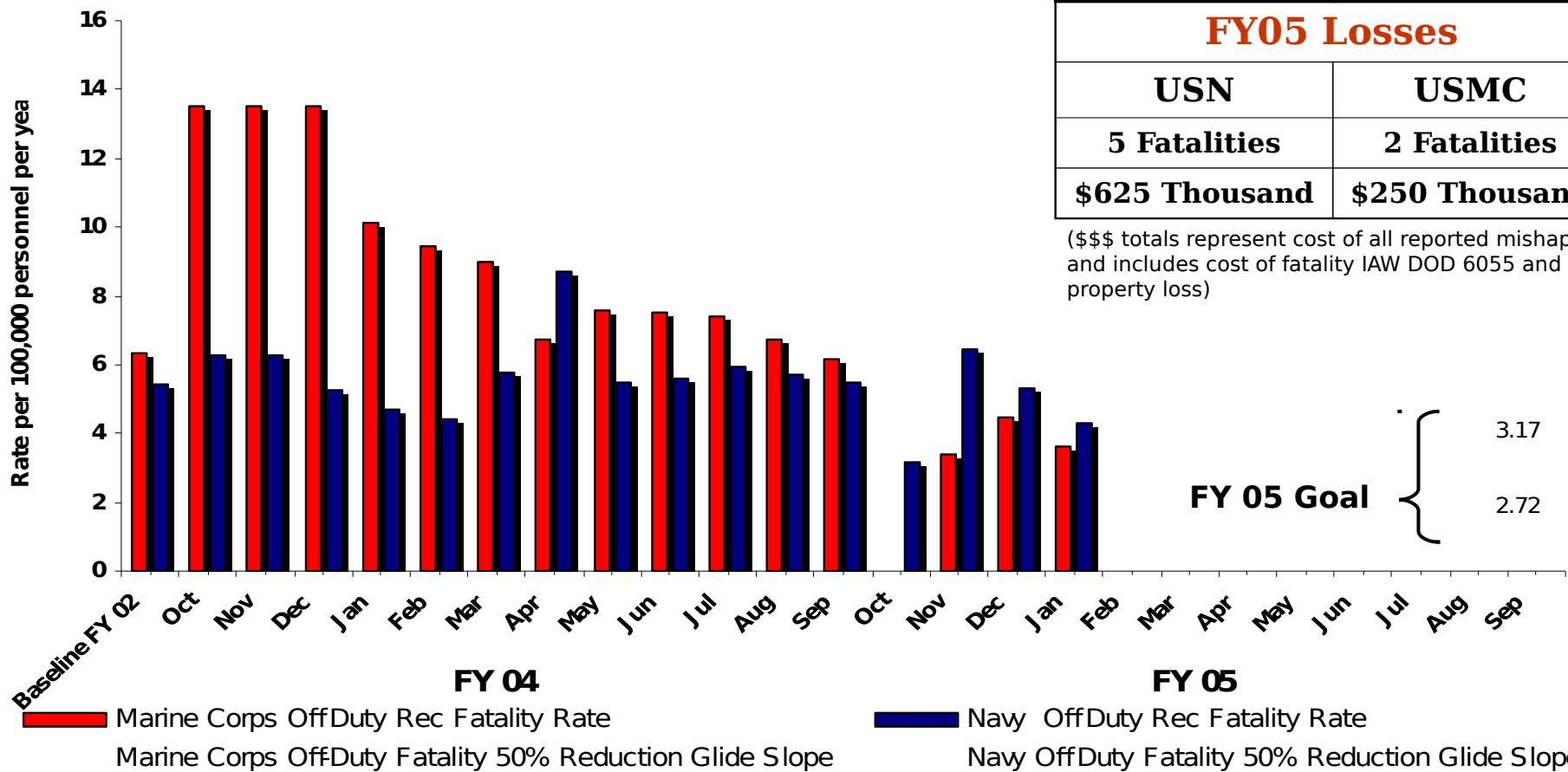
Video Clip: Fatigue-Related Mishap



Status Check (Recreation/Off-Duty Fatalities)

Leading Causal Factors

- Inadequate training
- Failure to follow regulations
- Lack of experience at activity



FY04 Losses

USN	USMC
22 Fatalities	11 Fatalities
\$8 Million	\$3 Million

FY05 Losses

USN	USMC
5 Fatalities	2 Fatalities
\$625 Thousand	\$250 Thousand

(\$\$\$ totals represent cost of all reported mishaps and includes cost of fatality IAW DOD 6055 and DOD property loss)



Not a good day on the water...

Video Clip: Jet Ski Mishap



What do your Sailors or Marines do for fun?

Video Clip: Bicycle Mishap



Traffic and Off-Duty safety adherence is difficult to monitor but critical to overall success...

Video Clip: PMV Crash/Seatbelt



ORM and the Fleet

COURSE S

ORM (OPNAVINST

3500.39B) NSC

- Instruction available on NSC website.
- Governs use of ORM throughout the Fleet
- “SHOULD” to “SHALL”

● **Curriculum.** CNET, NSC, and NAVOSHTRACEN courses incorporate ORM into curricula.

● **Training.** Aviation, Afloat, and Submarine survey teams provide ORM refresher training upon request. Aviation, Afloat, and Submarine safety officer schools provide instructor-level ORM training.

PGO/PYO/DH schools, DIVO training, and Senior Enlisted Academy provide training.

ON-LINE

● **On-Line Training.** Offered through CNAF’s ORM University and USMC MarineNet. Resources available on NSC website. Total Risk Assessment and Control System (TRACS) & U.S. Army Motor Vehicle Risk Assessment Tool (ASMIS).

ORM Works!

Transition to RM a Must.
Need it On and Off-Duty!

MISHAP RATES

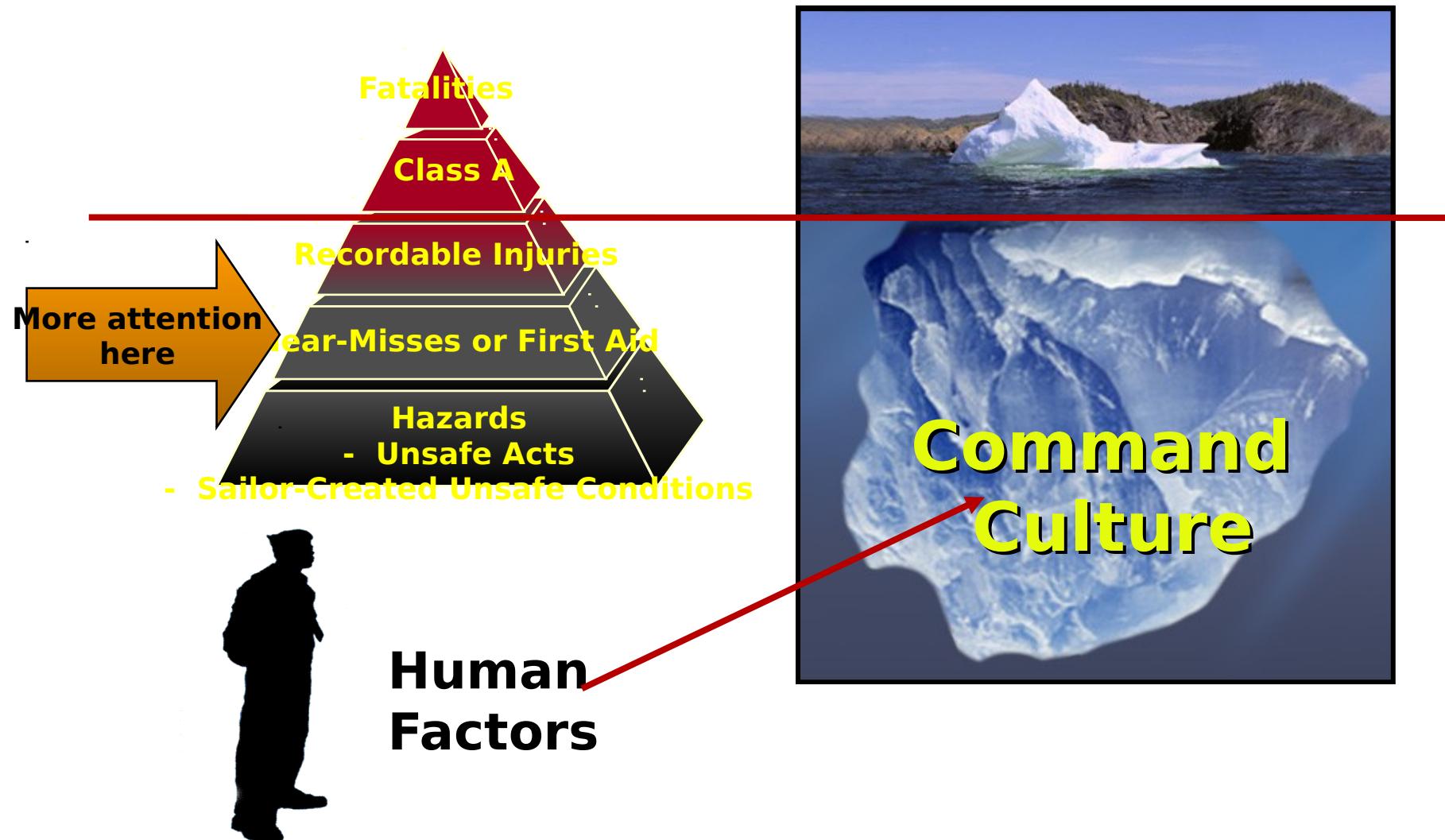
1990
2000
2004

ORM Introduced to Fleet
Aviation Mishap Rates Declining
Afloat and Submarine Communities Show Improvements

Works- but is not institutionalized!



Leaders Focus on Culture





How To Get There - What is “Actionable”

LEADERSHIP → CO sets the climate

1. Ensure you have a consistent “Safety Structure”
2. Mentor - On and Off duty
 - 2nd MAW Mentoring Program / Revise leave chits to a “contract”
 - What are your Sailors/Marines doing after hours?
 - The “leadership hungry” PO3
 - Look for the signs “Below the Waterline!”
3. ORM → RM
 - Take it off-duty (**ORM is not “THERE” yet**)
4. Awareness - Can we improve if Sailors don't know about Mishap Reduction Campaign???
5. Accountability - A Command with no PMV program?
6. Reporting - HAZREPS? Class B, C,

A Class “A” is a Class “A” is a Class “A”.....

- Does a Parent “care” how their Son or Daughter died?



Are We Serious About Safety?

- Commander Accountability
 - Class A Flight Mishap vs. Class A PMV
 - Weak NATOPS program; No involvement; Bad climate
 - No PMV program; No mentorship; Bad climate
 - On and Off-Duty Responsibility
 - Proactive vs. Reactive
- Was it preventable?
- Human factors
- Command Safety “Structure”

**Safety “Climate” vs. Safety
“Nazi”**



We're Serious About Parts of Safety

THE BUILDING BLOCKS OF SAFETY



DESIRED END STATE

Every Sailor possesses an ever-present and intuitive safety awareness that he or she carries at all times - at sea, on deployment, at work, at home, on liberty and leave.



If I were CO, I would do these 6 things to improve

- Safety...**
- VISIT THE NAVAL SAFETY CENTER WEBSITE - THE TOOLS ARE THERE!
 - SCHEDULE A BASELINE SAFETY SURVEY, CULTURE WORKSHOP, AND/OR AN ONLINE SCAS/CSA/MCAS SURVEY AS APPROPRIATE FOR COMMAND.
 - ENSURE THE COMMAND HAS A SOLID WELCOME ABOARD/SPONSORSHIP PROGRAM AND MENTORSHIP PROGRAM. (ON- AND OFF-DUTY)
 - IDENTIFY KNOWN HIGH RISK PERSONNEL WITHIN COMMAND.
 - ONE ON ONE AWARENESS TRAINING AND MENTORING
(WHO RIDES A MOTORCYCLE?)
 - ESTABLISH STATE SIDE LIBERTY RISK PROGRAM.
 - SHOW PERSONNEL THE COLD HARD OUTCOME OF FAILING TO FOLLOW THE RULES AND EXERCISE SAFETY.
 - PAGE 13 ENTRIES ENTERED INTO RECORD UPON COMPLETION OF EACH TRAINING SESSION.
 - MAINTAIN HIGH VISIBILITY WITHIN COMMAND.
 - HOLD PERSONNEL ACCOUNTABLE FOR FAILURE TO FOLLOW REGULATIONS.



Is It Possible?

- “Platform” Type Mishaps - YES!
- “Off-Duty” Mishaps - HARD.
 - ***Can be done - but CHANGE a MUST!***
- ***Human Error - The “KEYS” of the realm***



What We Can Do for You

Naval Safety Center



Providing aviation, afloat, and shore support
to Navy and Marine Corps commands



NSC at your service... for free!

Let our experience, expertise and unrivaled
commitment to safety work for you.

Mishap Investigations

Surveys

Assist Visits

Data Analysis

Workshops

Publications

Website

Presentations

Exhibits

Call 757-444-3520 (DSN 564) or visit our website: www.safetycenter.navy.mil

ON THE ROAD

- Culture workshops
- Unit surveys
- ORM unit training
- Mishap investigations
- USMC MTT seminars
- PCO briefings
- NAVOSHENVTRACEN Safety & Occupational Health Training

AWARENESS

- Fleet Analysis
- Magazines printed/distributed (473,000 copies)
- Interactive CD's
- Acquisition process in-roads
- Safety advisories
- Customer information requests (3,600+ database queries per month)
- Safety Center web page



Questions?

